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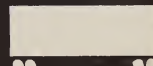
E FARM INDEX S

GADSBY
also in this issue:

Farms on the Water Wagon
Our Powerful Farm Producers
Prospecting for Protein
Who Owns the Water?



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ECONOMIC TRENDS

ITEM	UNIT OR BASE PERIOD	'57-'59 AVERAGE	1966		1967		
			YEAR	APRIL	FEBRUARY	MARCH	APRIL
Prices:							
Prices received by farmers	1910-14=100	242	265	265	252	250	246
Crops	1910-14=100	223	235	236	223	224	224
Livestock and products	1910-14=100	258	292	291	277	273	265
Prices paid, interest, taxes and wage rates	1910-14=100	293	334	333	339	340	341
Family living items	1910-14=100	286	315	314	318	318	318
Production items	1910-14=100	262	285	283	288	289	288
Parity ratio		83	80	80	74	74	72
Wholesale prices, all commodities	1957-59=100	—	105.9	105.5	106.0	105.7	105.3
Industrial commodities	1957-59=100	—	104.7	104.3	106.0	106.0	106.0
Farm products	1957-59=100	—	105.6	106.4	101.3	99.6	97.6
Processed foods and feeds	1957-59=100	—	113.0	111.5	111.7	110.6	110.1
Consumer price index, all items	1957-59=100	—	113.1	112.5	114.8	115.0	—
Food	1957-59=100	—	114.2	114.0	114.2	114.2	—
Farm Food Market Basket: ¹							
Retail cost	Dollars	983	1,100	1,100	1,083	1,078	—
Farm value	Dollars	388	442	448	413	411	—
Farm-retail spread	Dollars	595	658	652	670	667	—
Farmers' share of retail cost	Per cent	39	40	40	38	38	—
Farm Income:							
Volume of farm marketings	1957-59=100	—	120	88	93	97	93
Cash receipts from farm marketings	Million dollars	32,247	42,879	2,832	2,705	2,852	2,700
Crops	Million dollars	13,766	18,213	845	891	842	800
Livestock and products	Million dollars	18,481	24,666	1,987	1,814	2,010	1,900
Realized gross income ²	Billion dollars	—	49.5	—	—	50.0	—
Farm production expenses ²	Billion dollars	—	33.2	—	—	34.8	—
Realized net income ²	Billion dollars	—	16.3	—	—	15.2	—
Agricultural Trade:							
Agricultural exports	Million dollars	4,105	6,885 ³	552	514	552	—
Agricultural imports	Million dollars	3,977	4,492 ³	383	354	413	—
Land Values:							
Average value per acre	1957-59=100	—	150 ⁴	—	157 ⁵	—	—
Total value of farm real estate	Billion dollars	—	171.1 ⁴	—	179.7 ⁵	—	—
Gross National Product: ²							
Consumption ²	Billion dollars	457.3	739.6	—	—	763.7	—
Investment ²	Billion dollars	294.2	464.9	—	—	479.9	—
Government expenditures ²	Billion dollars	68.0	117.0	—	—	109.3	—
Net exports ²	Billion dollars	92.4	153.0	—	—	169.1	—
	Billion dollars	2.7	4.8	—	—	5.4	—
Income and Spending: ⁶							
Personal income, annual rate	Billion dollars	365.3	580.4	570.5	609.3	612.7	614.1
Total retail sales, monthly rate	Million dollars	17,098	25,306	24,949	25,470	25,771	25,667
Retail sales of food group, monthly rate	Million dollars	4,160	5,927	5,981	5,942	6,026	—
Employment and Wages: ⁶							
Total civilian employment ⁷	Millions	63.9	72.9	72.5	74.1	73.7	73.9
Agricultural ⁷	Millions	5.7	4.0	4.2	3.9	3.9	3.9
Rate of unemployment ⁷	Per cent	5.8	3.8	3.7	3.7	3.6	3.7
Workweek in manufacturing	Hours	39.8	41.3	41.5	40.3	40.4	40.5
Hourly earnings in manufacturing, unadjusted	Dollars	2.12	2.71	2.70	2.78	2.79	2.80
Industrial Production: ⁶	1957-59=100	—	156	154	156	156	156
Manufacturers' Shipments and Inventories: ⁶							
Total shipments, monthly rate	Million dollars	28,745	44,037	43,540	43,932	44,784	—
Total inventories, book value end of month	Million dollars	51,549	77,897	70,346	79,394	79,705	—
Total new orders, monthly rate	Million dollars	28,365	45,182	45,064	43,527	43,761	—

¹ Average annual quantities of farm food products purchased by urban wage-earner and clerical-worker households (including those of single workers living alone) in 1960-61—estimated monthly. ² Annual rates seasonally adjusted first quarter. ³ Preliminary. ⁴ As of March 1, 1966. ⁵ As of November 1, 1966. ⁶ Seasonally adjusted. ⁷ Series revised beginning January 1967, giving data for persons 16 years of age and older.

Sources: U.S. Dept. of Agriculture (Farm Income Situation, Marketing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Advance Retail Sales Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale Price Index).

THE AGRICULTURAL OUTLOOK

Period of Adjustment. The nation's output of goods and services rose \$5 billion (seasonally adjusted annual rate) in the first quarter of this year, but primarily because of higher prices. Though economic activity slowed, the outlook for the year, especially the last half, is for continued economic expansion. Cash receipts from farm marketings and gross farm income in 1967 will probably be near last year's record level, but production expenses are expected to continue rising. Realized net farm income probably will not match last year's unusually high level. Only 1966, 1947 and 1948, years when demand was extremely strong, are expected to top net farm income for 1967.

Intent to Add 18 Million Acres. The March 1 crop survey indicated farmers intend to plant an additional 18 million acres in 1967. Total livestock output is estimated to be higher. But farm production costs will go up, too, though at a slower rate than in 1966.

Food Demand Up. Food expenditures first quarter 1967 rose nearly 4 per cent from a year earlier to a \$93 billion seasonally adjusted annual rate. Retail food store sales were up moderately and spending at eating and drinking places was up sharply.

COMMODITY HIGHLIGHTS

Dairy Price Seesaw. Prices farmers received for milk during January-March 1967 averaged \$5.05 per 100 pounds, 11 per cent above a year ago, but down somewhat more than seasonally from the record \$5.40 of last October. For the year, average milk prices received by farmers may reach a record high—some 4 or 5 per cent above the \$4.78 per 100 pounds for 1966. Fall milk supplies could be tight enough to bring prices near last fall's record levels.

Cow Culling Rate High. Despite first quarter milk prices to farmers near record highs, prices of cutter-canner cows were at levels that encouraged dairy farmers to continue culling herds at above average rates. Unless this culling rate slows considerably, milk production in the last

half of 1967 could fall below year-earlier levels.

Livestock Cutback. Meat production has been up substantially so far this year and livestock prices have been considerably lower than in early 1966. Fed cattle prices last winter were \$3 to \$4 per 100 pounds lower than a year earlier at most midwest markets. Hog prices were also down sharply. Prices are likely to strengthen during the spring and summer as supplies moderate. Even so, supplies will continue large and the price improvement is expected to be moderate.

Cutback in Broilers. Federally-inspected slaughter for the first quarter climbed 10 per cent above a year ago. But the rate of output during April fell back to only 1 per cent higher. Recent cutbacks in chick placements indicate production will continue to hover around last year's levels through July. **Egg production** in May was at the seasonal peak and 6 per cent above a year ago. It exceeds consumption by a wide margin.

Turkeys Tumble. Turkey prices broke sharply after Christmas due to oversupply and competition from other meats. Prices for lighter birds suffered most with heavy toms continuing to benefit from the rising use of turkey in convenience foods. Later this year turkey prices are expected to recover closer to 1966 levels.

Wool Prices Shorn. Weaker U.S. mill demand and lower wool prices worldwide cut domestic wool prices sharply in the first quarter of this year. In March, wools grading 60's and finer averaged 10 per cent less than a year earlier; those grading 56's-58's were down about 17 per cent. A 4 per cent reduction in sheep inventory on January 1, 1967 from 1966 indicates total wool production for the year will probably decline.

On the Wheat Beat. A total wheat crop of slightly over 1.5 billion bushels is indicated. Wheat stocks of 703 million bushels on April 1 were down 214 million bushels from last year and

the smallest on that date since 1952. First quarter prices received by farmers averaged \$1.62 per bushel. Prices during the remainder of the marketing year are not expected to decline significantly from current levels.

Report Rice Record. The 1967 rice acreage allotment at 2 million acres is unchanged from a year ago but yields are expected to continue the recent uptrend. March intentions indicated an 88 million hundredweight rice crop for 1967, a new record and 3 million above 1966.

Feed Grain Price Up. Prices received by farmers for feed grains averaged about 12 per cent higher during October-April than the same period last year—the highest since 1954/55. There has been little seasonal rise since last fall in contrast to the greater than seasonal increases during the past two years. Prospects for the 1967 crops will influence feed grain prices considerably during the balance of the 1966/67 marketing year. The larger free stocks held outside government programs on April 1 this year, if accompanied by a favorable growing season, are expected to limit any seasonal rise in prices this spring and summer.

Seventh Soybean Year. Growers intend to sow a record 40.6 million acres of soybeans, more than 3 million over 1966, for the seventh consecutive year of record high soybean acreages. At the same time soybean usage is expected to continue its long-run upward trend. During September-March soybean crushings totaled 319 million bushels compared with 316 million a year earlier. Prices of No. 1 Yellow soybeans at Chicago, though 7 per cent higher than 1965/66, have been relatively steady, averaging between \$2.88 and \$3.00 per bushel since last October.

Cotton Use Large. Domestic mill use of cotton in the current crop year is expected to exceed slightly last year's large use of 9½ million bales. Exports during August-March totaled 3.4 million bales, up from 2.2 million for the same months last year and above last year's total exports of 2.9 million. Cotton acreage is expected to be smaller for 1967 since producers have signed up to remove 4.8 million acres from production.

Rising Tobacco Consumption. U.S. smokers consumed more than 541 billion cigarettes in 1966, up 2.4 per cent over 1965 and more than in any previous year. Per capita consumption rose 0.7 per cent but was 1¼ per cent under the 1963 peak. Exports of unmanufactured tobacco totaled 551 million pounds—18 per cent above 1965 and the largest in 20 years. For flue-cured tobacco, the leading cigarette and export kind, the 1967 crop marketings plus an expected carry-over around 8 per cent lower than a year earlier will probably provide a 2½ per cent smaller total supply in 1967/68 than in 1966/67.

FARM FINANCE TIGHT

Total farm assets (estimated) as of January 1, 1967, reached a new high of \$273 billion—an increase of \$18.3 million or 7 per cent during 1966. Debt expanded by a record amount but less than the growth of total assets. Result: an estimated gain in equities of \$14 billion.

Total farm debt, aside from Commodity Credit Corporation loans, is estimated at \$44.9 billion, representing a record increase in 1966 of \$4.7 billion or 12 per cent. Fifty-one per cent of this is accounted for in real estate debts, the balance for machinery, livestock, other production equipment and enlargements and improvements on the farm.

Farm real estate values moved higher with the national index reaching 157 (1957-59=100) for the year on November 1, 1966, up 8 per cent from a year earlier and 5 per cent above March, 1966. Farm real estate averaged \$164 per acre with the total value estimated at \$179.8 billion. The value of the average farm unit was \$59,800 compared with \$54,300 a year before.

Interest rates on new farm mortgage loans started to rise in late 1965 and continued upward in 1966. Rates charged on farm mortgages by 20 reporting life insurance companies averaged 6.64 per cent in fourth quarter 1966—up 0.18 percentage points from the third quarter and 0.82 percentage points from the previous year.

Altogether farmers paid about 14 per cent, or \$300 million, more in interest in 1966 than they paid in 1965.



FARMS ON THE WATER WAGON

What's the best way to use diminishing water supplies? At what point does it become uneconomical to irrigate? Farms on the Texas High Plains provide some answers.

The big question for many irrigated farm areas in the Texas High Plains is how best to use the gradually diminishing supply of irrigation water. That question in turn raises the issue of how long it will be economically feasible to use the water at all.

A recent study of the area indicates some profitable alternatives to maintaining current irrigation practices. The study covered three programs—current levels of irrigation plus two alternatives. The first alternative calls for maintaining only those facilities already in use and letting the irrigated acreage decline as the water supply drops. The second assumes additional irrigation facilities, but only when the investment in such facilities could be

recovered within the life of the program.

The enterprises are initially identical for the three different programs. The model farm used in the analysis contains 540 acres, with 472 acres classed as cropland—40 acres of cotton, 111 acres of grain sorghum, 107 acres of wheat and 214 fallow or idle acres.

The analysis itself reflects year-to-year effects of the declining well capacity.

Program I, current practices. It wouldn't be practical for a farmer in the area to try to maintain current levels of irrigated acreage for more than a few years, assuming prices remained at base period levels (1964). When the attempt went on for more than eight years in the study, it resulted in a substantial capital loss because of the unrecovered investment of \$30,000 to \$38,000 in irrigation facilities.

Program II, irrigation facilities kept constant. With the number

of wells held to the 1964 level, the irrigated acreage declines over the expected economic life of the system. The system provides the lowest use of irrigation water and the longest life (24 years) of the three programs. It also reduces the unrecovered investment to about \$5,000.

Program III, annual income pushed to the maximum. Key difference between this system and the others is that it is based on maximum recovery of investment. In this program, investing in additional wells and replacing pumping units is limited by the requirement that the investment be recovered within four years—the assumed operational life of a submersible pump and motor.

In this program, it was profitable to replace the pumping units or add new wells up to the 17th year of the program, when irrigated acreage was severely reduced. During the life of the program, the amount of irrigated land fluctuated yearly, rising in

THREE PROGRAMS FOR IRRIGATED FARMS IN THE TEXAS HIGH PLAINS

Program	Total water use	Economic life-span	Return to land and management ¹		Unrecovered investment ³
	Acre-feet	Years	Accumulated Dollars	Discounted at 8 per cent ² Dollars	Dollars
I	3,716	13	142,141	86,140	38,140
II	3,748	24	177,106	90,948	4,757
III	3,797	18	168,772	93,632	170

¹ During "economic life-span." ² Dryland "opportunity costs" and "unrecovered investment" subtracted before discounting. ³ Investment in irrigation facilities only.

the years when it was profitable to drill a well, and gradually decreasing when no new wells were drilled.

The systems compared:

Production. Holding the number of wells to the base level, program II provides more total production, but it takes six more years to achieve the production total, compared with program III.

Program I, maintaining the level of acreage irrigated, provides the lowest level of total output because the system survives only 13 years. By its nature, however, it provides the highest rate of annual production because it maintains a full seasonal water supply for more irrigated acreage.

Water used. The three systems use about the same amount of water overall, but at considerably different annual rates. Program I uses 3,716 acre-feet in 13 years. Program II uses 3,748 in 24 years. Program III uses 3,797 in 18 years.

Returns. The discounted net returns to land and management amount to \$86,140 for program I, \$90,948 for program II and \$93,632 for program III.

Furthermore, there is an unrecovered investment of \$38,140 for program I and \$4,757 for program II. For program III, the unrecovered investment amounts to only \$170.

Different depreciation sched-

ules would materially affect the amount of investment remaining at the end of each program.

The choice between the three systems appears to turn on the individual's time preferences for benefits—whether he wants his returns in 13, 18 or 24 years—and the amount of capital invested in irrigation facilities that is not recovered when it is no longer economically feasible to irrigate. (1)

Falling Water Table Dampens Crop Prospects for Many Arizona Farmers

Arizona farmers are concerned about a decline in the water table of some areas and the resultant increase in costs of pumping water.

Water worries of the farmers are understandable, for farmers use 90 per cent of the state's water supplies to irrigate their crops. They have been using more water annually than a city of 100,000 people would use in 250 years at present consumption rates.

Industrial and municipal users account for only 10 per cent of the water used.

Despite regional declines in the water level, supplies are still relatively abundant. They have to be in order to provide at least 1,500 billion gallons annually.

The three main sources of Arizona's water are the Salt River reclamation project, the Colorado River, and pumping from underground sources.

Underground sources provide about two-thirds of the water supply. And in some agricultural areas, the water table of this stock ground source has been declining as much as 20 feet a year.

Among reasons cited for the receding level: Farmers are pumping water faster than it's recharged back in the ground; and water users aren't fully aware of the economic value of the commodity.

The overdraft of water in central Arizona presents no particular hazard to nonagricultural water users in the foreseeable future. The impact will probably continue to fall almost entirely on farmers.

As the water table continues to decline, farmers who rely on ground source water supplies face the prospect of higher pumping costs and an accompanying decline in net income.

Little cutback in cotton acreage is in sight as long as cotton remains anywhere near as profitable as it is now.

Hay and feed grain producers have less reason to be optimistic. It is not unlikely that their net returns will in time drop below a level that is profitable. (2)

Farmers Going Into Sugarbeet Field Often Find an Equipment Pool a Boon

Counsel to those who would grow sugarbeets: Have the special equipment that sugarbeets require. Most farmers don't.

Arizona farmers had to face this fact last fall. They were growing sugarbeets for the first time in order to profit from facilities offered by the first beet processing plant built in the state.

To aid prospective sugarbeet producers in making investment decisions, economists of the University of Arizona, in cooperation with the Economic Research Service, came up with the following guidelines.

Special preharvest machinery required to plant, thin and cultivate sugarbeets means an investment of between \$2,350 and \$6,300, depending on size, model and make.

The larger the acreage on which the machinery is used, the lower the machinery cost per acre. If the preharvest equipment is used on only 20 acres of beets, costs are estimated at \$29.00 per acre. On 240 acres it would drop to \$9.50.

With 70 or more acres of beets, a farmer will find it more economical in the long run to buy 4-bed equipment, capable of handling 240 acres, than the 2-bed outfit that is initially cheaper.

After planting and cultivating comes the harvesting; and harvesting machinery is expensive. A beet harvester and a tractor to operate it mean an investment of \$13,000 to \$18,000.

The cost of a harvester is prohibitive for most individual farmers.

Purchasing preharvest machinery also may not be feasible, especially when a farmer is planting only a small acreage, has had no experience in growing sugarbeets and isn't sure how long he will grow them.

There are two alternatives:

Hire a custom operator, or join with neighboring farmers in buying and operating machinery.

The "pool" method can substantially reduce investment per farm and annual per acre costs.

A 2-row beet harvester, for example, can easily harvest 700 acres for a minimum investment of \$19 to \$26 per acre of beets on farms that pool their resources to buy and operate the harvester.

Joint ownership, instead of hiring a custom operator to do the work, would save about \$12 to \$15 annually per acre of beets.

Also, if a farmer is able to do custom work for others when he isn't using the equipment on his beets, he can cut costs further and make extra profit too. (3)

Cotton Carryover To Dip Sharply As Mill Use, Exports Rise in 1966/67

The carryover of all kinds of cotton is expected to total around 12 million bales next August, down sharply from last August's record level of 16.9 million bales. Stocks are being reduced this crop year because combined domestic mill consumption and exports are well above the small 1966 crop.

Preliminary ginning reports indicate that the 1966 crop totaled 9.6 million bales, down over 5 million from 1965's output. Production dipped to a 20-year low last year because of smaller harvested acreage and lower yields.

Domestic mill consumption for the 1966/67 crop year is expected to exceed slightly last year's large use of 9½ million bales. The large use this year reflects the strong demand for cotton textile products for both civilian and military uses, as well as competitive gains for cotton domestically.

Our cotton exports are running well above year-earlier levels and are expected to total around 5 million bales at the end of this crop year. Last crop year exports totaled only 2.9 million bales. (4)

Efficient Colorado Cattlemen Help Set Operating Levels for Western Ranches

Little gain in production efficiency is made by increasing the cattle feeding operation beyond the family-size business (3,000 head on feed at one time).

Larger operations have only slightly lower average costs, but because of their larger volume of production, they earn higher total profits.

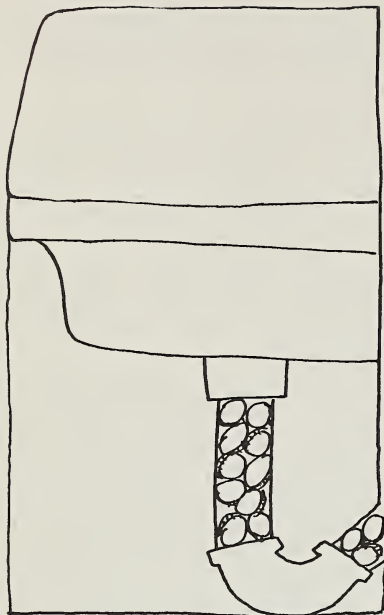
These findings resulted from a recent study of the South Platte Valley in Colorado which fed approximately 5 per cent of all cattle in the U.S. in 1963.

Under usual operating conditions, ERS economists found that as the size of the feeding operation increases, the annual cost per head declines—at least until some restriction, such as feed mill capacity, is encountered.

Absence of a feed mill significantly increases grain processing and hauling expenses. Even small feedlots (around 300-head capacity) can cut costs by owning a feed mill suitable for their size.

While the smaller operator needs less money for getting started in business, his average investment per head of capacity is higher. This average investment ranges from \$154 to \$26 per head of capacity as feedlot capacity shifts from 135 head hand-fed to 15,300 head using the 100-ton feed mill. Likewise, annual cost of processing and distributing the feed and caring for the cattle declines from \$36 to \$14 per head fed over this size range.

This study showed that each size of feedlot had its lowest average cost — highest efficiency — when the feedlots were operating at full normal capacity throughout the year. However, most small feedlots don't run this way. A 1961-62 survey showed feedlots capable of 143 head used only 46 per cent of their capacity; those capable of 12,000 head, 98 per cent of capacity. (5)



Today's Farm Insurance: Depreciation Will Catch You If You Don't Watch Out

It's a wise farmer who can keep up with the insurance values of the physical property on his farm.

Farmers as a whole today are obtaining more and more insurance, but some may still not be fully protected on their increased investments.

New machinery, improvements to buildings and inflation have almost doubled insurable farm property values since World War II ended.

Yet average depreciation of farm capital is high. From 1960 to 1965 it was \$4.5 billion per year. From 1940 to 1945 it averaged \$1.2 billion. And many farmers simply aren't reducing insurance coverage fast enough on some assets declining in value.

Part of the problem is obsolescence caused by technological improvements. As new models of farm machinery come out, the value of older models declines somewhat the way the value of last year's car does.

Other causes of depreciation

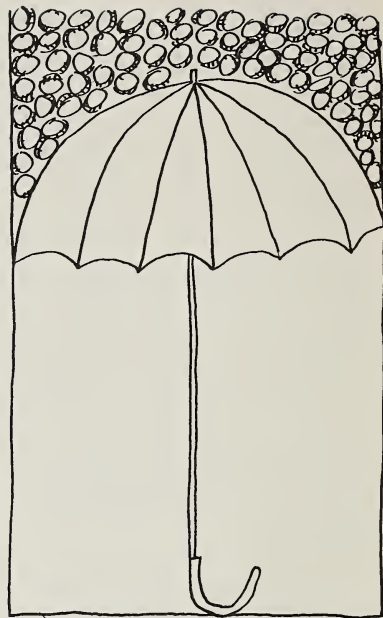
are changes in use, wear and tear, deterioration and inadequacy of equipment.

Since some property values go up while others fall, the farmer who thinks he is fully insured may find instead that he is either underinsured or is paying for more protection than he is ever likely to get. And both the farmer and the insurance man at times are at fault.

When a policy is written, the value of the property may often be overestimated. The farmer accepts this, thinking he is getting more coverage.

In reality, since the policy probably pays off only on the "actual cash value" at the time of the loss, the same coverage could have been obtained for less.

Similarly, when insurance comes due, usually every three years, both farmer and insurance man tend simply to renew the policy rather than reevaluate the property on the basis of appreci-



ation or depreciation.

Coverage often depends on the individual insurance man. Some will not insist that insurance be reduced on obsolete buildings because they feel that it might make for hard feelings with the owner of the depreciated property.

Other agents don't like to refuse insurance, especially to customers of long standing.

The result is insurance coverage based more on rule of thumb than any objective standard.

A more reliable method is basing evaluation on the usefulness of the physical property.

A barn built 30 years ago, for example, with about 10 years of remaining useful life, is being used to store machinery. It cost \$2,500 to build, but would cost \$8,000 to replace today.

If the barn were destroyed, however, the owner would probably replace it with a pole-frame shed costing \$3,000 with a 30-year life and an annual rate of depreciation of \$100 a year.

The utility value of the existing barn for its remaining 10 years would be no more than the utility value of the cheaper shed

Mathematically Inclined?

Here's one equation for determining the utility value of an existing building:

$$V_u = \frac{C_u k}{N}$$

where:

V_u = Utility value of existing building.

C_u = Cost of a new building.

N = Length of life of new building in years.

k = Remaining years of life of existing building.

Using figures from the example given in the accompanying article, the equation looks like this:

$$\$1,000 = \frac{\$3,000 \times 10}{30}$$

Therefore, the utility value of the existing building is \$3,000 (cost of new building) multiplied by 10 (years remaining of old building) divided by 30 (years of life of new building), or \$1,000.

Now try it on your old barn, garage or toolshed. (6)

for the same period.

Thus, the insurance value of the barn would be 10 years multiplied by the \$100 annual depreciation rate of the shed, or \$1,000.

Utility, however, is only one way of valuing obsolete buildings for insurance purposes. Earning capacity, current cost of rebuilding and sales or market value are others. (6)

Tax Levies on Farmland up a Record \$102 Million Between 1964 and 1965

Farm real estate taxes climbed for 22 consecutive years—and 1965 proved no exception.

State and local taxes levied on U.S. farm real estate totaled \$1,648 million in 1965 (the last year for which complete data are available). This was \$102 million above total levies in 1964—and a record yearly rise.

On a per acre basis, 1965 taxes were up from 1964 in 45 states, down in five. The greatest increases occurred in Florida and Nebraska (19 per cent each) and California (16 per cent). The states showing decreases were: Arizona, Idaho, Kansas, New Mexico and Oregon. The decreases reflected such actions as elimination of some property tax levies in Idaho, an increase in the amount of money from state sources for school purposes in Kansas, and reassessments that resulted in lower taxes on farm real estate in several of the states.

Taxes per acre of farmland averaged \$1.61, compared with \$1.51 in 1964. In 19 states, levies averaged over \$2 per acre; in 19 they were under \$1. New Jersey had the highest tax, \$12.62; New Mexico the lowest, \$1.7.

The average tax per \$100 of full value was \$1.02, the same as in 1964. This figure has remained steady at \$1.02 or \$1.03 since 1961, indicating that market values and farm real estate taxes have been rising at about the same rate. (7)

A \$3-Billion Umbrella of Insurance Is Shielding Farmers from Hail Storms

Ill winds may blow somebody good, but nobody likes a hail storm—farmers least of all.

Since the 1930's, U.S. farmers have been taking out more and more hail insurance. The volume reached an all-time high of \$3.1 billion in 1965.

For the coverage they got, farmers paid out \$116 million in premiums. They got back \$70 million in indemnity payments.

Coverage on corn accounts for about a third of all crop-hail insurance. Wheat and other small grains make up nearly a fourth, and tobacco and soybeans, about an eighth each.

Tobacco growers are the best hail insurance prospects. About a third of the U.S. tobacco crop is usually insured—the largest proportion of any major crop.

Next is wheat, with coverage on a fourth of its harvest value. About a fifth of corn and soybean crops is protected.

Hail protection for cotton, sweet corn, canning peas and apples is important in some areas. Citrus is rarely insured because it is seldom grown in hail areas.

Hail is most frequent in the Mountain and Plains Regions. The Corn Belt accounted for a

little over half of all crop-hail insurance in 1965. The Northern Plains area is the next biggest policyholder.

Appalachia also insures fairly heavily because tobacco is so susceptible to hail damage.

Hail storms are highly erratic, and damage varies widely among areas from year to year. In the 10-year period, 1956-65, average loss payments per \$100 of coverage were highest in the Great Plains and Mountain Regions.

Colorado farmers collected the biggest payments of any state—an average of \$7.50 per \$100 coverage. (8)

Putting on Weight? Nation's Beef Herd Finds It Easy in the Feedlot

The open range is fast giving way to the fenced-in feedlot as a source of beef supplies.

About two-thirds of U.S. beef output now comes from the feedlot. Twenty years ago, fed beef was only one-third of total production. Meanwhile, the nation's beef herd has grown from 43 million head to nearly 86 million.

With the dramatic expansion of the cattle feeding industry, fed beef production has nearly quadrupled since the mid-1940's and accounts for most of the twofold gain in total beef supplies.

Between 1946 and 1966, trends in beef output have differed somewhat for the three major classes of beef animals—steers, heifers and cows:

Steer beef production has about doubled. It still accounts for a little over half of total beef output—56 per cent, compared with 52 per cent two decades ago.

Heifer beef output has more than quadrupled and has upped its share of the total to 24 per cent from 10 per cent.

Cow beef, with little change in average annual volume, has dropped its share from about 38 per cent to 20 per cent of total beef output. (10)

Egg Basket Upset

Last year, according to Department of Agriculture figures, egg production totaled 179 million cases. This was about the same as 1965, but you could hardly tell it if you looked only at regional changes.

Egg production rose 5 per cent in the South Atlantic States, 4 per cent in the South Central States and 2 per cent in the West.

At the same time, egg production fell 8 per cent in the West North Central States and 2 per cent in both the East North Central States and the North Atlantic States. (9)

OUR POWERFUL FARM PRODUCERS

Never have we as a nation owed so much to so few farmers. Now less than 6 per cent of our population, they continue to break all agricultural production records.

Year after year farm labor increases its output about 2 per cent.

What are they like, the productive people who are working down on the farm?

They are fewer. The farm population declined by nearly a third during the 1950's, while total population increased almost a fifth. In fact, since 1950, about as many people moved off the farms as there are now living on them.

Today's 11.5-million-person farm population represents less than 6 per cent of the 198 million citizens.

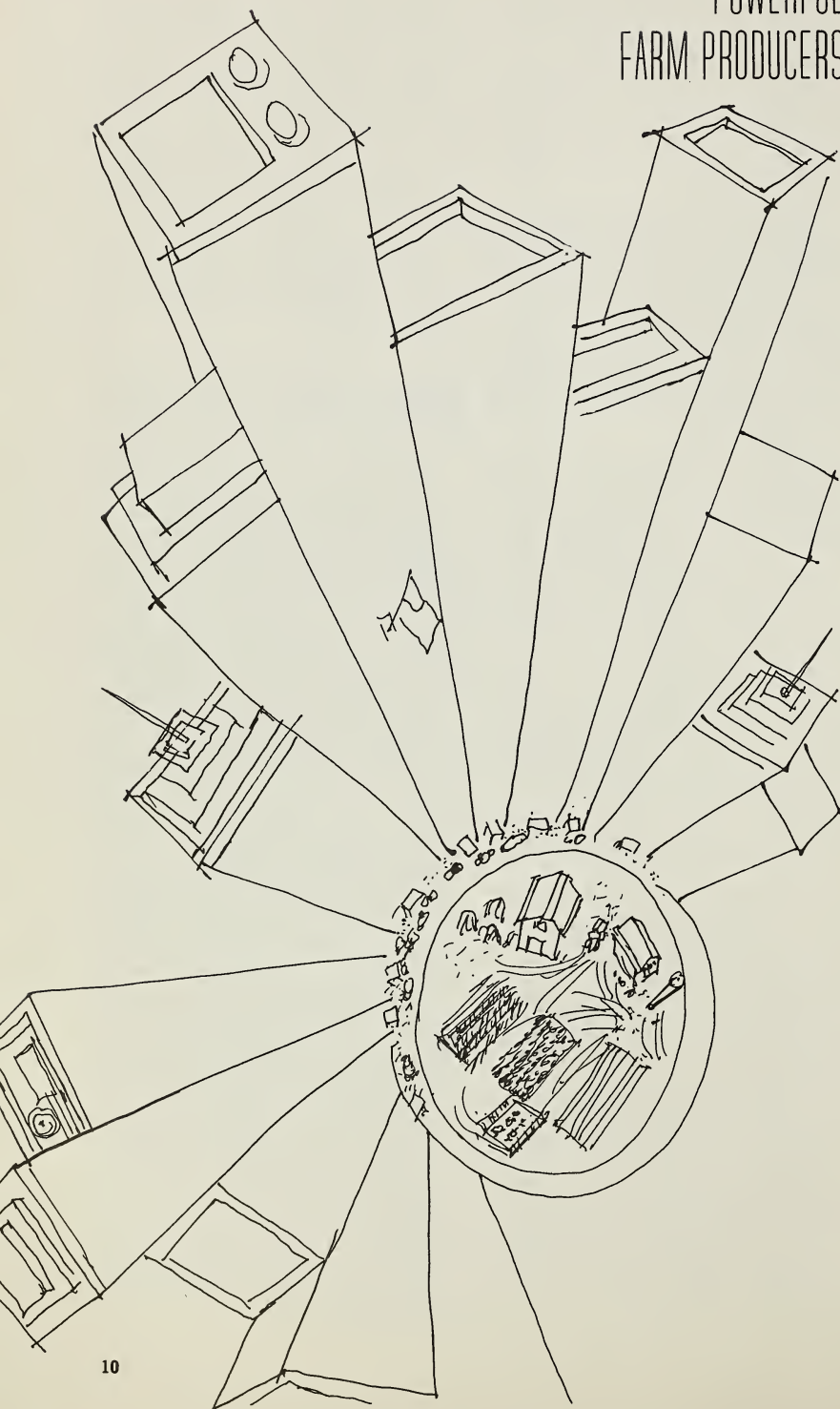
A family affair. Farming is the only major industry in which the operator and his family do most of the work.

In 1966, the number of farm operators and unpaid family workers averaged about 3.9 million persons, about three-fourths of the total 5.2 million employed on the farm. The other 1.4 million were hired hands.

Even so, hired workers make up a larger share of the total labor force on the farm today than they did a decade or so ago. As small farms were combined into bigger ones during the 1940's and 1950's, the farm family members in large numbers vanished from the list of workers.

Today, there are about a million and a half farms with gross sales of less than \$2,500 a year. Their operators often work off the farm a good part of the year, yet make up part of the statistics on operators and family workers. Some of these smaller farms are essentially retirement homes.

Who's got the workers? The Corn Belt does. In 1966, the Corn Belt employed an annual average of almost a million farmworkers.



Close to 900,000 worked in the Appalachian Region.

The fewest workers of all were in the Mountain Region where the extensive farming of livestock results in a low man-land ratio.

The type of farm also has a lot to do with the relative importance of family versus hired worker. In the Pacific Region, for example, hired workers outnumbered family workers. The area's intensive fruit and vegetable production calls for large numbers of hired workers.

In the Deep South and in the Mountain States, the proportion of hired workers runs around a third of the total. For the other regions, the proportion of hired workers ranges down to 12 per cent in the Lake States.

Less swing to the employment cycle. Not only has the number of farmworkers dropped off, but the seasonal swing in employment has been flattened. This fluctuation is measured as the rise and fall in monthly employment compared with the annual average figure.

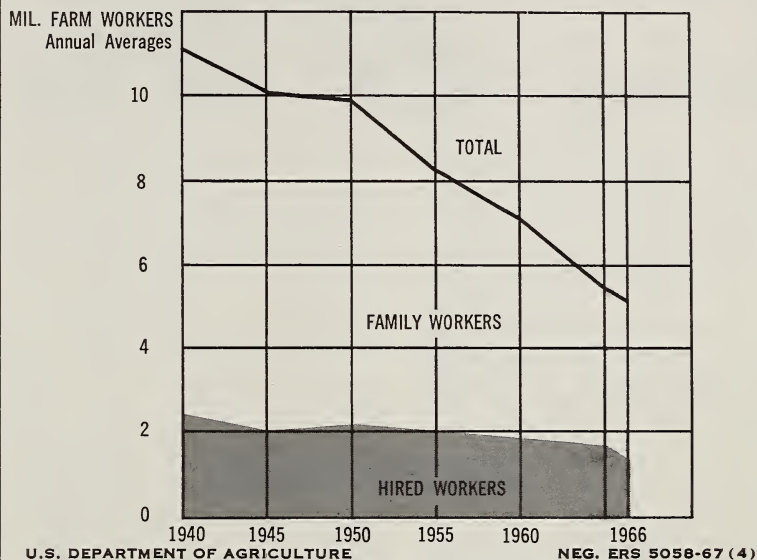
Seasonality for employment fell off noticeably in the Southeast, the Delta States, and the Southern Plains. Greater mechanization of farmwork, particularly in the cotton fields, explains a good part of the increasingly uniform monthly pattern of farmwork in these regions.

The worker's wage. The cash wage on the farm in 1966—without board or room—averaged \$1.23 per hour. For production workers in mining, hourly earnings were \$3.05, in contract construction, \$3.87, in manufacturing, \$2.71.

Up with output. The number of farms may be down, the band of workers may be smaller, but the capacity of agriculture to produce keeps right on growing.

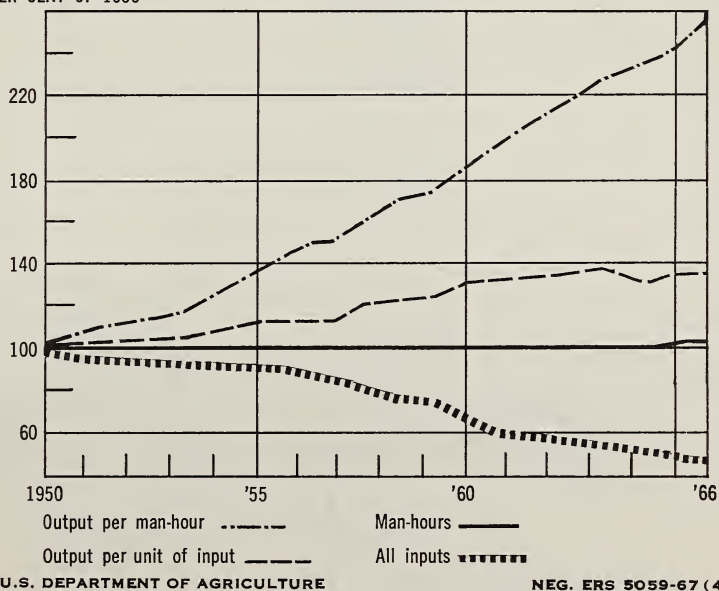
Labor, particularly, has achieved remarkable efficiency. Output per man-hour—reflecting a net effect of all factors of production—has more than doubled in the past 15 years or so. (11)

KEEPING IT IN THE FAMILY: Farming is the only major industry in which the operator and his family make up the major portion of the work force. The relation holds even today, though thousands of small farms have been lost in the onrush of technological progress.

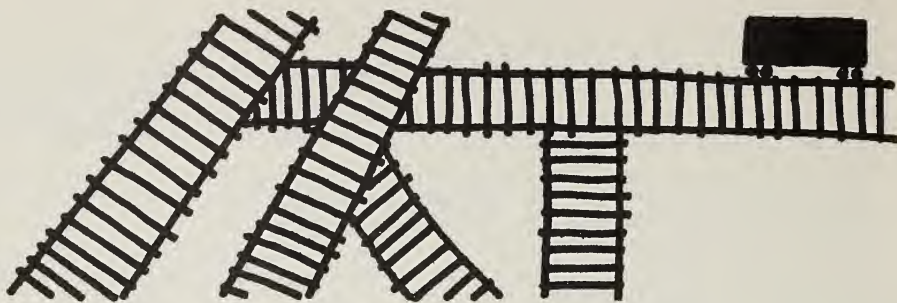


SO MUCH FROM SO FEW: Despite fewer farms, smaller labor force, output from agriculture climbs steadily upward. The output of one hour of labor—the net effect of all the factors of production—has more than doubled since 1950. Increased efficiency has particularly marked the production of livestock, with poultry workers leading the way.

PER CENT OF 1950



one of our boxcars is missing



Rising freight car costs, inadequate rental rates and a boxcar shortage caused railroads to revise methods, signalling what may be the end of the plain train.

They loaded the freight car with canned goods in Stockton, California. Destination, New York City.

In New York, the canned vegetables were replaced with television sets to be shipped to Savannah, Georgia.

In the Savannah yards, the emptied freight car was soon

loaded again, this time with newsprint on an order to St. Louis.

Then followed, in rapid succession, corn for Huntsville, Alabama, rice for Seattle, Washington, lumber for Ogden, Utah.

Only after the car got to Ogden—perhaps six months later—was it turned over to its home road.

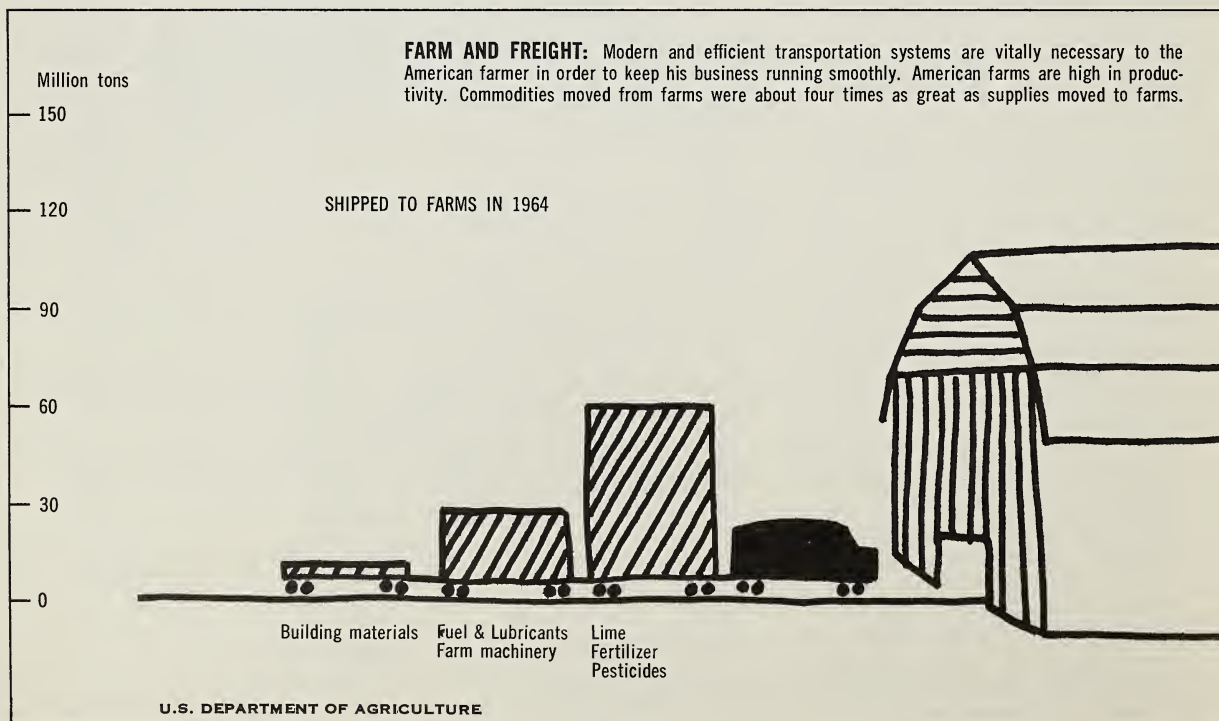
The freight car's pillar-to-post progress illustrates one of the abiding problems of the railroad industry—a huge investment in rolling stock that hasn't always paid for itself.

A large part of the problem

has been caused by the "per diem" rate used by the industry. This is what a rail line owning a freight car gets in payment for its use by another line. Since a plain boxcar may spend about two-thirds of its life on a "foreign" line, the impact of such rates can be enormous.

One study has shown that a per diem rate of \$2.75 would repay an owner for a new car costing about \$6,400, on the basis of a 30-year depreciation and a 6 per cent return on investment.

But a modern boxcar with roller bearings costs anywhere



from \$12,000 to \$15,000 today. And, until recently, the per diem rate was only \$2.88, far from an adequate inducement to invest in new equipment—especially when that equipment may be rented at the per diem rate for most of its useful life.

Small wonder, then, that rail lines until recently held on jealously to their expensive, specialized equipment. When they did let another road use a big hopper car or a specially designed boxcar, it was usually under the strictest terms to insure prompt return.

All this might be considered as a matter of concern for the rail lines alone. However, errant freight cars, rented from owning lines under anachronistic per diem rates, seriously reduce the nation's freight carrying capacity. In effect, they sharply limit the number of cars available.

"Demurrage" is another railroad term that accounts for some of the missing freight cars. Demurrage is the price a shipper or

receiver pays for excessive delay in loading or unloading a car.

To attract more customers during the 1950's, when considerable traffic was diverted to trucks and barges, railroads eased up on demurrage charges, offering extra time allowances to shippers and receivers alike. While the practice undoubtedly pleased the customers, it also cut down on the number of cars available for loading at any one time.

Even the rail lines' streamlined rates structure has contributed through growth of demand to the shortage of cars.

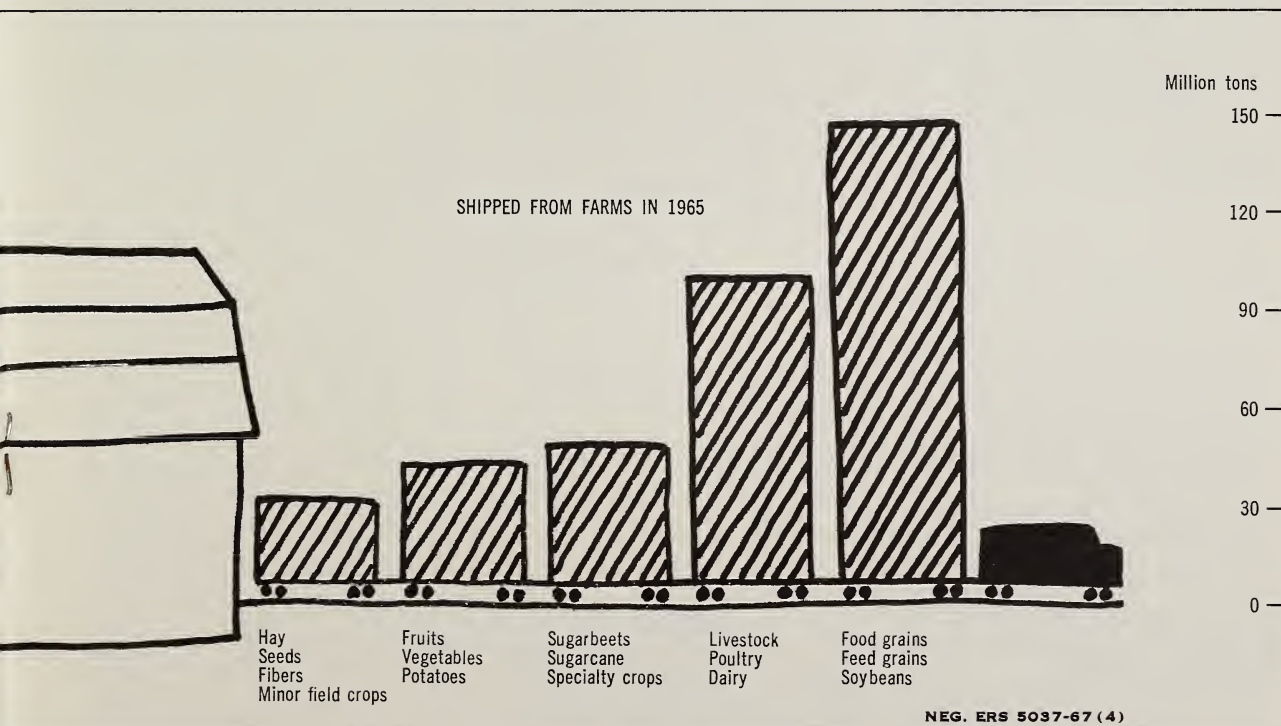
The lines have, of course, been trying to correct the situation. Just three years ago, the rails broke away from the fixed per diem rates. The scale that went into effect January 1, 1964, ranged from \$2.16 a day for a car worth \$1,000 or less up to \$12.18 for a car worth \$35,000 or more.

Various proposals have been made by the Congress, by the Interstate Commerce Commis-

sion, and by the trade itself to provide incentive rates and premiums which would call more cars into being.

Shippers, too, are doing their bit to ease the freight car shortage. Among other steps, they have found better ways to load cars, so that an average load now runs to 83 per cent of car capacity. It was 79 per cent in the early 1940's.

Modern information systems can also help relieve the pressure on freight car supply. An information system constantly gathering and processing data from all the rail lines would provide at the push of a button last minute figures on the supply situation. The entire industry could be alerted to any serious deviation from normal geographic distribution of the inventory of cars. Such an information system would add appreciably to the capacity of the rail lines without having to put a single new car on the tracks. (12)



Dairy Market Picture Since '44 Shows Our Nation Well Supplied With Milk

The iceman cometh, says the playwright. But the milkman goeth away.

Milk plants are, in fact, going out of business at the rate of about 800 a year.

Since it is the little milk producers who are getting away, and the bigger ones who are remaining in the business, there are more than enough to keep the nation well supplied with milk, ice cream, and all the other variations on "nature's most perfect food."

Here are some characteristics of today's dairy industry, according to figures gathered by the Economic Research Service for the National Commission on Food Marketing:

The power on high. In 1964, the four top dairy firms in the nation ran 7 per cent of all plants processing fluid milk. They made more than a fifth of the total value of shipments. Output for the top four was more than three times the value of shipments by the fifth to eighth largest firms.

The leading four, however, lost some of their portion of the market between 1954 and 1964. Their share slipped from 24 to 22 per cent.

On the local scene, however, leading companies were more so at the end of the study period. The average market share of the four largest firms was three times as high in 69 individual market areas as it was nationally. And the smaller the market, the fewer the firms and the greater the concentration of output.

In 1964, the four largest firms accounted for 89 per cent of the fluid milk processed in the smallest of the federal milk order markets studied. The share of the top four was only 52 per cent in the biggest markets.

The dairy dropouts. Some 14,000 fluid milk processing

THE FLOW OF MILK

Milk on the Farm
100 pounds of 3.7 per cent milkfat, 8.6 per cent solids-not-fat

Sold by farmers to plants and dealers, or retailed 94.9 pounds

Used on the farm, 5.1 pounds

(Fed to calves 1.7 pounds Consumed as milk, cream 2.9 pounds Farm butter 0.5 pound)

Eligible for fluid use 61.1 pounds

Manufacturing grade milk
28.9 pounds

Retailed 1.4 pounds

Farm-skimmed cream 3.5 pounds

Fluid milk and cream 43.9 pounds

Manufactured dairy products 50.6 pounds

Residual 0.4 pound

Whole milk 37.3 pounds

Separated milk 34.6 pounds

Separated 6.6 pounds

Whole milk products 16.0 pounds

Ice cream, frozen products ⁷ 8.9 pounds

Plain, flavored milk 37.3 pounds

Butter, byproducts ⁶
24.5 pounds

Cream ¹ 4.9 pounds

Dry whole milk ⁵ 0.5 pound

Skim milk ² 1.7 pounds

Canned milk ⁴ 3.2 pounds

American, other cheese ³ 12.3 pounds

Cottage cheese, malted milk ⁵ 1.2 pounds

¹ Mixtures, egg nog, light and heavy cream, sour cream. ² Plain, solids added, flavored, buttermilk. ³ American, Italian, Swiss, cream, other cheese, whey butter, dried whey. ⁴ Evaporated, sweetened, condensed. ⁵ Milk equivalent. ⁶ Butter, including use in frozen desserts, nonfat dry milk, dry butter-milk. ⁷ Ice cream, ice milk, sherbet, mellorine, bulk condensed.

U.S. DEPARTMENT OF AGRICULTURE

NEG. ERS 5038-67 (4)

plants went out of the business between 1948 and 1965, when they numbered 5,600 plants. It was a decline of 72 per cent in numbers. Most of the exodus was made up of the small plants, particularly producer-dealer-farmers who sell bottled milk to consumers or retailers. Numbers of producer-dealers dropped 85 per cent in that period, while the number of milk-bottling plants declined 53 per cent. There's no sign the trend will change in the near future.

The plants producing ice cream and other manufactured products went through a similar shrinkage, though the process was not nearly so severe. They lost about a third of their numbers in the period between 1944 and 1961.

Safety in numbers? The large dairy firms are rapidly diversifying their operations, by moving into nondairy lines.

In 1964, some 56 per cent of sales came from domestic sales of dairy products for the five most diversified companies among the major dairies. The comparable figure for 1954 was 81 per cent of sales.

The mating game. The main way the largest dairy firms have adjusted to the economic facts of their lives until recently has been through mergers and acquisitions.

The first 20 firms will probably be even more important in the future. However, the top four firms in the industry have all but abandoned their acquisitive ways within the dairy industry, presumably because of merger complaints by the Federal Trade Commission.

Bonus for bigness. Being small is no asset in the dairy business.

Among other problems, the small-volume enterprise must cope with higher costs, both fixed and variable. The difference gets bigger constantly. Every day new techniques are demanding costly new equipment and facilities.

The large, well advertised firm

can more readily create acceptance for its product than the smaller one. And acceptance translates itself back into volume, as well as price.

Procurement, too, may be a more expensive process for the smaller firm.

What's in (or behind) a name?

The retailer can, if he chooses, produce his own dairy products. Or, more likely, he can buy his private-label product from a processor.

Production by the 40 largest retail food chains in their own plants amounts to 7 per cent of total ice cream output, 4 per cent each for fluid milk and evaporated milk.

The large chain is more apt to distribute private-label fluid milk products than the small one. And though most of the retail chains carry processor brands as well, they devote more than half their total display space for most dairy products to their own labels.

Top sellers among the private labels are ice cream, evaporated milk, butter, homogenized milk and cheese.

Private-label fluid milk generally sells for less, commonly 2 cents less per half gallon. Since fluid milk doesn't lend itself to product differentiation, and is hedged by well defined standards, the private label has been a windfall for consumers.

Ice cream may be another story. Private-label ice cream often has less butterfat and solids-not-fat than the supplier's.

The dairies say they supply private-label products to retail food chains to forestall their entry into the processing business, to maintain their own volume, to get display space for their own brand, or to hold on to the space they have.

A cooperative business. Two out of every three gallons of milk delivered to plants and dealers were sold through a co-op in 1964. A decade earlier, the figure was 59 per cent. (14)

Now Granny Must Mix Continuously To Make It Big As a Bread Baker

Granny's "home-baked" bread is now, most likely, being mixed and baked by efficient, unaffectionate pieces of automated equipment.

This same equipment is not only charmless, but is also doing away with a good number of jobs.

That's the picture for the bread baking industry as a whole. The individual plant presents quite a different scene.

The adoption of the continuous mix process has, in fact, resulted in increased employment for many a plant.

Within a corresponding three-year comparison period, the total number of employees in the baking industry dropped almost 5 per cent, while the number of employees in the sample of continuous mix plants rose almost 6 per cent.

Again, for the industry, the numbers of production workers declined by 7 per cent, while the numbers of nonproduction workers dropped only 2½ per cent.

It was a different story for the continuous mix plants. The comparison period saw a 4-per cent rise in the number of production workers and almost a 12-per cent climb in the size of the nonproduction labor force.

Automation meant more jobs in such fields as production control, program scheduling, sales and delivery and maintenance.

While these trends were showing up, the number of baking firms not using the continuous mix process was dwindling. The introduction of more efficient automatic processes in the competitive plants explained a good part of the decline, but not all of it. There was a decline in the number of bakeries even in those locations where the continuous mix plants had not appeared. But automated baking brings higher output per plant. (15)

Waste Not, Want Not, Is Basis for Big Industry Using Cotton Leftovers

A gigantic wastebasket holding over half a billion pounds of scrapped material worth nearly \$100 million. That's the magnitude of the U.S. cotton mill waste industry.

Many industries depend on mill waste as an economical source of raw material.

Products processed from the waste material range from oil filters to toy stuffing. Bedding, automotive, furniture and paper industries are the biggest users.

What is cotton mill waste?

Collectively, it's all the "leftovers" from the various processing stages that raw cotton goes through before emerging as yarn and finished goods.

Cotton waste dealers usually specialize in either "soft" waste or "hard" waste.

Soft waste includes "bits and pieces" (noils, strips and motes) of fibers that have not undergone any of the twisting process of cotton manufacture. Hard waste is material that has had some processing, such as yarn and thread waste, remnants, mill ends.

Excluding in-mill use, about

581 million pounds of cotton mill waste went into U.S. marketing channels in 1965. Of this, about 185 million pounds were exported and 75 million pounds imported.

The two primary outlets are manufacturers of padding and upholstery filling, and processing firms that turn the waste into a wide variety of textile products such as wiping cloths.

These two industries together used over 245 million pounds of soft cotton waste and over 91 million pounds of rags and "clips" in 1963. They paid almost \$36 million for the waste. They employed over 11,000 workers whose annual pay exceeded \$51 million. (16)

Specks of Dust Can Make Mountain Of Trouble for Feed Mill Operators

One way to control dust is to sweep it under the rug.

This time-honored method, however, is not adequate for feed mills and grain elevators, where dust collection quickly brings on financial headaches.

Millers who are good housekeepers recognize dust not only as a potential hazard inside a building but also as an air pollutant outside.

Inside control of dust in feed mills is a must if for no other reason than to prevent an explosion. Almost any particles of dust can cause an explosion if they are fine enough, concentrated enough, and properly mixed with oxygen and ignited by a flame or spark.

Good inside dust control also pays off for millers because it:

- Cuts down labor costs for cleaning;

- Reduces deterioration and wear of machinery parts;

- Minimizes the chance that costly, potent micro-ingredients so important in mixed feeds may be lost into the atmosphere;

- Upgrades working conditions and thus attracts high-grade labor;

- Prevents contamination of

mixed feeds by drug-containing dusts.

Outside dust control is a serious problem for many feed mills located within town limits.

In some areas, stringent anti-pollution laws require all air discharged from feed mills to be filtered.

Filters are almost 100 per cent efficient. Less costly "cyclone" dust separators usually allow a small percentage of fine particles to escape. They settle on automobiles and in neighboring homes and thus create ill will.

Most plant managers feel that filters will pay for themselves in a relatively short time.

Invisible loss from dust is said to have been cut down from about 2 per cent to about 1/4 of 1 per cent by filter installation. If a feed mill operator is producing a large volume of a product with sizable value, the losses—or savings—add up rapidly.

Mill equipment of the future is likely to have dust control connections built in at the factory.

Meanwhile, good engineering is mandatory for an efficient control system—and is especially important if the system is added in stages instead of, ideally, being put in at one time. (18)

Yes, We Have Bananas

The cardboard box is making a contribution to world trade by revolutionizing banana exporting. The fruit is in better condition at delivery and a wider distribution into world trade channels is possible.

Formerly, the bananas were shipped on their stems, in no particular kind of package.

Imports by major countries totaled 9.9 billion pounds in 1965, up from 1964's 8.6 billion pounds.

The United States, which absorbs between 35 to 40 per cent of world imports of bananas, imported 3.7 billion pounds in 1966, a rise from the 1965 figure, 3.5 billion. (17)

Rise in Retail Sales

It took a whopping amount of cash register tape to ring up the \$71.1 billion worth of sales by America's retail food stores last year.

The 1966 total was about 6.3 per cent higher than in 1965. Grocery stores made 92 per cent of the total sales by all food stores last year. Meat markets, bakery product stores and other specialty food stores accounted for the remaining 8 per cent.

Western retailers recorded the biggest gain in sales—a 9 per cent increase over 1965. Sales were up almost as much, 8 per cent, in the South and North Central States. The smallest rise, only 4 per cent, occurred in the Northeast. (19)



PROSPECTING FOR PROTEIN

The growing world need for animal protein—an essential element in foreign food aid—spurs the search for alternatives, including blends using vegetable proteins.

One of mankind's most pressing needs is an adequate supply of low-cost, high-quality protein.

While calories are the quantity index of an adequate diet, grams of protein are the nutritional index.

Animal proteins (meat, milk and eggs) contain about the right proportion of eight amino acids required by the human body. Vegetable proteins (cereals and legumes) lack some of these acids, particularly lysine and methionine.

By 1970, the world shortage of animal proteins alone is forecast at over 14 billion pounds, in terms of nonfat dry milk.

U.S. nonfat dry milk has been one of the chief sources of animal protein for foreign food aid programs in the past decade.

Between 1956 and 1966, donations under government programs accounted for one-half of all U.S. nonfat dry milk exports.

Our U.S. supplies, however, have been dwindling since 1963.

Last year's nonfat dry milk output was the smallest since 1956. And USDA purchases—367 million pounds—were at the lowest level since 1952.

Exports in 1966 dropped to 388 million pounds from 863 million in 1965.

Nonfat dry milk prices have risen sharply because of the declining U.S. supplies and increasing foreign demand.

It is doubtful that enough nonfat dry milk ever will be available to meet world needs for protein. This gives rise to two questions:

What other protein foods or concentrates can be substituted for nonfat dry milk, or used as a supplement?

What would be some of the production and marketing problems involved?

Dry milk products have been

used in U.S. foods for some years. They include (aside from nonfat dry milk) dry buttermilk, dry whey, and lactose. Sometimes these products are combined or they may be blended with soy flour. They usually sell at lower prices than nonfat dry milk.

Vegetable protein concentrates, have long been used domestically. Some of them are:

—Full fat flour (from soybeans), used mainly in formulas for those infants who are allergic to milk;

—Defatted flour, used in making high-protein, low-calorie beverages sold in both dry and liquid form as special dietary foods;

—Soy flour and grits, used as protein supplements in breakfast cereals, bread, noodles and meat products.

On the basis of availability and cost, products containing soy protein appear to hold much promise for foreign food aid programs.

One pound of blended food products (a balanced nutrient source with all necessary amino

acids) is about 20 per cent protein, compared with 35 per cent in a pound of nonfat dry milk. Thus, 1 pound of nonfat is equal in quantity of protein to about 1.75 pounds of blended products.

However, the U.S. Department of Agriculture has purchased blended products for about 9 cents a pound, compared with about 21 cents for nonfat dry milk (vitaminized).

To compete on the basis of protein cost, nonfat dry milk would have to sell for about 16 cents a pound. This makes it virtually impossible, at present, for nonfat to compete with soy protein on a price basis alone.

This price relationship would seem to suggest that nonfat processors should gear their plant capacity to manufacture soy flour and blended products. But the principal vegetable product ingredients require special processing techniques and equipment. Also much market development effort is needed.

These obstacles are even greater in foreign areas.

Many developing countries do not have marketing systems that can physically handle distribution of large volumes of food. This makes introduction of nonstaple,

specialized foods difficult.

Local food preferences hinder acceptance of new foods, too. Age-old food habits are slow to change, and new foods should be introduced in a way that will make them sought after, not just tolerated.

Nevertheless, increased use of protein concentrates to meet food deficits abroad seems probable.

Products most likely to be used further in food aid are various combinations of cornmeal, soy flour, nonfat dry milk, and necessary minerals and vitamins. Two of them—purchased by USDA—are called CSM (Formula No. 2) and Ceplapro (Formula No. 1).

Since last August, USDA has bought about 150 million pounds of blended protein food (CSM) for delivery by April 1 of this year. CSM is now being used pound for pound for nonfat dry milk as an alternative source of protein in the Food for Peace program. In 1964, USDA first began using these products in foreign donation programs on a pilot basis. There seems to be a good opportunity to introduce them on a larger scale through school lunch and similar programs where government and school officials—not household habits—set the diet.

Several large commercial firms have already been instrumental in gaining acceptance abroad for protein blends. Examples:

—*Incaparina*, a vegetable protein mixture, has been made available in Latin America at a price competitive with cereal grains and at about one-eighth the cost of nonfat dry milk.

—*Pronutro* was introduced in Africa in 1961. This protein-rich food uses the following: nonfat dry milk, dry whey, peanuts, soy beans, fish flour, food yeast, wheat germ, bone meal, and vitamin B.

Backing of public health officials and the medical profession, and many trials and demonstrations, are basic to commercial introduction of such products. (20)

Poultry Exports '66

U.S. exports of fresh and frozen poultry in 1966 totaled 163 million pounds—down from 182 million pounds in 1965 and the record 263 million in 1962. All poultry exports were up sharply in January-February 1966, compared with a year earlier, due to the maritime strike which reduced shipments during those months in 1965. But, as 1966 progressed, exports of whole turkeys, broilers and stewing chickens dropped off from the previous year. (9)

Airphoto Coverage Sharpens Focus Of Agricultural Development Overseas

Taking inventory of forests in the Amazon is about as big a job as anyone would want to tackle. But aerial photography makes it feasible, and Brazil has been doing it.

The forest inventory is only one of many agricultural projects throughout the world where airphotos provide data on agricultural production and aid in appraising, planning and developing land resources.

In the less developed countries, airphoto coverage is helping to get agricultural development underway by accelerating field surveys or serving as a substitute for them. A number of aerial programs are being carried out as United Nations Special Funds projects.

In the more developed areas, airphoto interpretation is an economical way of getting up-to-date agricultural information for a wide variety of uses ranging from reclamation projects to rural recreation planning. (For use in the U. S., see Farm Index, April 1966.)

Let's look at a cross-section of countries in varying stages of development, and with airphoto programs ranging from extensive to limited.

The majority of these countries

What's New?

Food processing firms of Western Europe—like their American counterparts—are setting a fast pace in development and use of new methods and equipment.

Among techniques now popular in Europe is a whole milk sterilization treatment that produces a natural-flavored milk with a shelf life of several months. The method, developed in England, is to heat the milk to 275° F. and, after two seconds, cool it to 55°.

Also popular is the high-temperature, short-time (HTST) canning method. It takes about 110 minutes between sealing of the can and labeling it after cooling. Mushrooms, carrots, peas and green beans take to it. (21)

use airphoto coverage for at least one of three purposes: to classify land use, to classify soil and to gauge land potentials. But there are a score of other uses to which airphotos are put by one or more of the countries. These other uses include wildlife habitat studies, crop disease detection and soil erosion surveys.

Here are a few illustrations of agricultural airphoto progress abroad:

The Netherlands pioneered the technique, with official coverage beginning in 1934. Its state-supported International Training Centre for Aerial Survey, at Delft, is world renowned for its consulting service, project work and training program, made available to many scientists in the less developed countries.

In *Venezuela's* long history of airphoto coverage, starting in 1936, 75 per cent of the country

has been photographed at least once, including all the developed northern part.

Canada facilitates use of 3 million official photos through a unique institution, the National Air Photo Library, under the Department of Mines and Technical Surveys, in Ottawa.

Ecuador's first use of airphoto coverage in agriculture was in 1961, when it made one of the few relatively detailed maps of land use in Latin America.

Honduras inventoried its pine forests by air in 1963 as an aid to agricultural development.

Nigeria has used photo interpretation to spot insect damage to its valuable cacao trees.

India only recently began large-scale airphoto projects, one for watershed management in Bihar and West Bengal. Increased use of airphoto interpretation in agriculture can be expected. (22)

Soviet Leaders Are Now Learning—It Pays To Face Agricultural Reality

The present leaders in Russia agree with their former premier on the vital importance of fertilizer to agricultural progress in the USSR.

But they've scaled Khrushchev's goal of 70 million tons of fertilizer by 1970 down to a more realistic 55 million tons.

And they've changed most other parts of the previous agrarian program drastically. For instance:

—The Ministry of Agriculture was restored to its former pivotal role.

—Economic research was revitalized and an extension service, very similar to the U.S. system, was set up for the first time.

—Some restrictions on private plots and privately-owned livestock were lifted, and special taxes on urban livestock were set aside.

—Loans were extended to encourage individual purchase of breeding stock and about one million tons of food concentrates were made available to private owners.

—The annual procurement target of the new regime was stabilized at 55.7 million tons of grain for each of the years 1965-70, substantially below the original goal of 65 million tons for 1965 and far below the previous goal of 90 million tons for 1970.

—Grain, meat and milk procurement prices were raised appreciably. Meat prices, in some cases, were doubled.

In addition, the Kremlin decreed a 50 per cent bonus above basic price on all grains and some crops sold to the government over quota. And the urban-rural price differential for consumer goods was reduced, in effect lowering the level of retail prices in the countryside.

Production successes have already been noted in industrial

This airphoto showing a rice paddy with surrounding village in Ceylon is part of a special coverage flown for use in agricultural development. The airphotos were used in the resource inventory and planning phase of the Walawe Ganga Basin multipurpose development project.



crops—cotton, sunflower seed and sugarbeets—all achieved through the addition of limited amounts of machinery, fertilizer, capital and production incentives.

During the next five to ten years these programs should show reasonably good results.

The existing communistic structure is expected to be retained despite suggested changes by some Soviet authors, ranging from share-cropping tenure agreements to a capitalistic agricultural market economy. (23)

Farm Production Seesaws in Asia; U.S. an Important Market for Region

Record imports of U.S. farm products by Japan and unparalleled foodgrain imports into India were highlights of the Far East situation in 1966 that have a direct bearing on the United States farm economy.

The United States, as an exporter of a number of agricultural products in great demand in Japan, should benefit from the growing market there. Japanese imports of U.S. agricultural commodities in 1966 exceeded \$1 billion (c.i.f.), up by a third from two years earlier. That country is now the largest commercial market for U.S. wheat, corn, cotton, soybeans and grain sorghum.

With massive aid from abroad, India strove to fill food shortages arising from the disastrous

drought of 1965 only to find that 1966 harvests were scarcely better than the year before. India will need foodgrain imports this year about equal to those bought in 1966—10 million tons. The bulk was supplied by the United States on concessional terms.

Agricultural production in 1966 gained appreciably over 1965 in Malaysia, the Philippines, South Korea and Thailand. In South Vietnam and Cambodia production dropped for the third consecutive year.

Production per capita in South Asia fell again in 1966. In the rest of East Asia it continued to increase, although in Japan it remained unchanged from 1965.

Gains in the production of rice, millet and sorghum were partly offset by smaller harvests of wheat and corn. The three principal wheat producing countries—India, Pakistan and Japan—each had smaller harvests. Rice, accounting for three-fourths of all grains, rose 2 per cent above 1965 but didn't match 1964's peak of 145 million tons. The largest gains were made by South Korea and Thailand.

Rice prices gained in the last quarter of 1965 and continued to rise in 1966, reflecting a generally short world rice situation.

Rice exports go mainly to other countries within the region. Thailand and Burma are the largest surplus producers, exporting 1,650 and 1,160 thousand tons

respectively in 1966. Smaller amounts were exported from Cambodia, Taiwan and South Korea.

The United States is an important market for the region's products. The principal U.S. imports include tea from Ceylon and India, spices and coffee from Indonesia, rubber from Malaysia and India and sugar and coconuts from the Philippines.

Agricultural imports from the region reached \$703 million in 1965, down slightly from 1964. Of this total, some \$278 million came from the Philippines. The next largest supplier, at nearly \$120 million, was Indonesia. (24)

Thai Tale

Tinkling temple bells, golden Buddhas, sapphires, silks and charming people. This is how Thailand, the fabled kingdom of Siam, is known to the tourist trade.

Thailand has more than history and romantic scenery going for it. It has, in fact, prosperity on its side. Its first National Economic Development Plan, covering the five years from 1961 to 1966 is paying off in larger harvests and greater industry.

Future plans call for a new paper mill, using sugarcane bagasse—the residue of milled sugarcane. This will be the largest industrial project in Thailand, valued at \$36 million, and should spur sugarcane production and reduce the paper import bill. (24)

Foreign Spotlight

CANADA. A new \$10-million commitment to the Inter-American Bank to aid Latin America brings the Canadian total to \$40 million (\$37 million U.S.) since the Bank's 1964 founding.

BELGIUM. The 1967 wheat crop is not likely to exceed the 1966 short crop of 650,000 metric tons. This will mean 1967/68 imports of 700,000 tons (or flour equivalent) to maintain the current consumption level.

INDONESIA. Free World businessmen are returning to salvage enterprises confiscated by the old government or to seek new investment opportunities. These include expansion of a fertilizer plant and building a new one, possible backing of a paper mill, and construction of a cigarette factory.

JORDAN. Recent good rains indicate that 1967 will be a better crop year than 1966, when drought cut output; but wheat production will probably continue to fall short of needs. (25)

WHO OWNS THE WATER?



With swimming pools and lawns using more of the precious stuff, today's landowners may find that possession is less than nine points of the law when water is involved.

Item:

—The owner of a land-locked plot of ground was refused permission to use the excess water from a stream on his neighbor's property.

—A swim club, using its well to fill the pool, caused a neighbor's well to go dry. The club had to help pay the cost of making the well usable again.

—A state ordered a municipality to improve its water-polluting sewage system.

—A power company was enjoined from building a new plant on a river because the location threatened to kill the fish.

—A logging firm was prevented

from cutting trees in a watershed area.

—A large city found its use of water severely restricted.

Landowner, swim club, municipality, power company, logging firm, metropolitan government—all have one thing in common. They control the land but not necessarily the use of the water associated with the land.

The situation is typical of 31 eastern and midwestern states, according to a recent study of water rights and regulations in the area.

If you live along a stream, you and your family usually have the right to drinking water, to water for use in the household garden and to the water needed for some livestock. In some states, you may use all you reasonably need for such purposes even though you use up the entire flow.

You may also make reasonable use of the water for any other purpose such as irrigation and industrial use.

To have such specific water rights, your land usually must adjoin the stream, lie within its watershed and be one contiguous ownership tract. Some states have stricter requirements.

In the use of navigable streams, however, public rights are recognized as coming first, though courts usually try to accommodate both public and private rights when possible.

Public rights may include use for commercial navigation, pleasure boating, fishing, swimming or other public purposes.

In the use of well water, it is permissible in some states for the landowner to take all the water he can get as long as he does not maliciously injure his neighbor or let the water run to waste.

However, in other states, the landowner may be limited to a reasonable use of the water on his land. Its use on distant lands may be prohibited if his neighbors are damaged by such use. (26)

'Snuf

Nobody knows how many anti-quarians buy snuff to lend an air of authenticity to their snuff-box collections. But somebody, somewhere in these United States, buys enough snuff to bring the nation's per capita consumption to nearly a quarter of a pound. Use last year averaged out to .23 of a pound by all citizens over 18 years old. Back in 1925-29, it was a little over half a pound, or .52.

Manufacturers' sales records indicate that snuff use tends to be above average in occupations where smoking is hazardous, such as lumbering areas of the Northwest and oil fields of the Southwest.

U.S. production of snuff, however, reached a long-time low of 29½ million pounds last year. Output has dropped off more than 8 million pounds in the past decade and is expected to continue downward. (27)

AN ECONOMIC EVALUATION OF STARCH USE IN THE TEXTILE INDUSTRY. Clarence A. Moore, Marketing Economics Division. AER No. 109.

It is becoming increasingly important that chemicals be "tailor-made" for more specialized tasks in textile sizing, printing and finishing. Starch's economic competitive position depends on the starch industry's ability to provide modified and starch-derived products applicable for sizing the wide variety of yarns and fabrics being woven. Technology is the key to its potential.

This study outlines the changes in the textile market and industry and the present competitive strength of starch. It also outlines directions for future research on the subject.

SEASONAL WORK PATTERNS OF THE HIRED FARM WORKING FORCE OF 1964. 1965 SUPPLEMENT. Avra Raption, Economic Development Division. Supplement to AER No. 102.

Major seasonal patterns of employment in 1964 and 1965 did not differ to any significant degree, although the number of workers was generally lower in 1965. Seasonal work changes among types of workers and geographic regions usually become evident only over a period of several years.

The supplement consists of tables which provide data on monthly patterns of farm wage work for 1965.

CHOICES UNDER THE 1967 COTTON PROGRAM. B. Bolton, A. M. Heagler, Farm Production Economics Division and Clyde St. Clergy, Louisiana Cooperative Extension Service, in cooperation with the Louisiana Agricultural Experiment Station. La. Cooperative Extension Miscellaneous Publication.

The major factors to be considered by cotton producers in



recent publications

The publications listed here are issued by the Economic Research Service and cooperatively by the state universities and colleges. Unless otherwise noted, reports listed here and under Sources are published by ERS. Single copies are available free from The Farm Index, OMS, U.S. Department of Agriculture, Washington, D.C. 20250. State publications (descriptions below include name of experiment station or university after title) may be obtained only by writing to the issuing agencies of the respective states.

choosing among allotment levels and planting patterns are discussed. These are expected yield, or gross returns, from cotton; per acre cotton production costs; and expected per acre returns from the next best crop to cotton.

FOOD RETAILING BY DISCOUNT HOUSES. Martin Leiman, Marketing Economics Division. MRR No. 785.

Trade sources estimate that retail food sales by enterprises in or associated with discount houses amounted to \$3.4 billion in 1965. This indicates a growth in sales of over 800 per cent in the past five years. Discount food stores had significantly higher average weekly sales and were open fewer hours during the week than conventional food stores studied in

10 Standard Metropolitan Statistical Areas in the U.S. in January and February of 1964.

This study examines the impact and implications of retail food operations by discount houses on conventional retail food distribution.

ECONOMIC POTENTIALS FOR BALING WOOD SHAVINGS AND SACKING SAWDUST. J'Wayne McArthur and Glenn Warnick, Natural Resource Economics Division. ERS-335.

Demand exists for baled shavings and sacked sawdust produced by lumber byproduct processing firms in many areas of the West. Major factors to consider before investing in a baling or sacking firm are the supply of raw materials and the potential area demand. The study covers four Western Resource Conservation and Development Project areas. Among the firms studied, capital investment in any separate type of processing operation did not exceed \$15,000, or \$19,000 when the baling and sacking functions were combined.

COSTS OF STORING AND HANDLING COTTON AT PUBLIC STORAGE FACILITIES, 1964-65. Marketing Economics Division. ERS-306.

A collection of tables representing principal areas and types of storage and handling facilities.

FARM BUILDING RESOURCES. R. N. Van Arsdall, Farm Production Economics Division, in cooperation with the Illinois Agricultural Experiment Station. Ill. Agri. Expt. Sta. Paper No. NA66-102.

Farm service buildings are an asset valued at \$15 billion for the agricultural industry as a whole, but to the individual producer an existing set of buildings may be worthless. This report delineates the need for development of new service buildings which will contribute to agricultural production at low cost over a period of time.

THE UNDEREMPLOYMENT CONCEPT: A WAY TO MEASURE NEED FOR ECONOMIC DEVELOPMENT IN APPALACHIA. R. W. Gieseman, Economic Development Division. ERS-347.

The equivalent of 765,000 persons in the labor force of the Appalachian Region were unemployed due to economic underemployment in 1960. This amount of underemployment represented 12.6 per cent of the labor force of the region, nearly double the 6.8 per cent unemployment rate reported. Surplus labor resulting from economic underemployment was particularly evident in rural counties where incomes were low. Many of these low-income rural counties had previously been thought to have very little surplus labor as indicated by standard measures of unemployment.

EFFECTS OF CHANGES IN COTTON ALLOTMENTS AND PRICES ON FARM INCOME AND ORGANIZATION IN SOUTH CAROLINA. T. A. Burch and J. W. Hubbard, South Carolina Agricultural Experiment Station in cooperation with the Farm Production Economics Division. S.C. Agri. Expt. Sta. Bul. 528.

This report is a presentation and analysis of optimum farm organizations for four areas of South Carolina under conditions of varying cotton prices and cotton allotment levels. Results of the study indicate that soybeans are

either the first or second most profitable enterprise on a number of the representative farms investigated, depending on the cotton price. A factor contributing to the relative profitability of soybeans is the smaller labor requirement per acre of soybeans, compared with cotton, even under the level of mechanization assumed for farms of 250 acres and over.

THE FARM LABOR SITUATION IN SELECTED STATES, 1965-66. William H. Metzler, Ralph A. Loomis and Nelson L. LeRay, Economic Development Division. AER No. 110.

Field trips to selected areas of major demand for seasonal agricultural workers, and first-hand observation and meetings with growers, processors, farmworkers, research and extension workers and other informed persons provided the information for this report.

The farm labor situation is reviewed for California, Texas, Florida, Michigan and New York. Problems unique to each area are explored in some detail.

AN ECONOMIC SURVEY OF THE NORTHERN LAKE STATES REGION. M. E. Wirth, Washington State University and R. A. Lomis, Economic Development Division, in cooperation with the Michigan Agricultural Experiment Station. AER No. 108.

This report was prepared to aid public and private groups and

individuals interested in stimulating economic growth in the Lake States—Michigan, Minnesota and Wisconsin.

Population estimates in 1964 indicated that 1.5 million people lived in 79 northern counties of these states—an increase of less than 5 per cent from 1950. By contrast, the population of the southern counties of these states increased 28 per cent.

Special emphasis is given to the northern regions of these states. Fundamental information and analyses are provided to establish priorities among alternative means of increasing the level of economic activity.

EFFECTS OF ALLOTMENT AND PRICE CHANGES ON RICE FARMS IN THE MISSISSIPPI RIVER DELTA. W. R. Grant and T. Mullins, Farm Production Economics Division, in cooperation with the Arkansas Agricultural Experiment Station. Ark. Agri. Expt. Sta. Rpt. Series 156.

This analysis is concerned with the effects of variations in rice allotments and prices received for rice, soybeans and cotton on the combinations of enterprises that would generate optimum returns to rice farmers in the Mississippi River Delta. The purpose is to provide guides to farmers in selecting alternative enterprises and the amount of resources to be committed to them as year-to-year changes occur in allotments and prices received.

Numbers in parentheses at end of stories refer to sources listed below:

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16. S. H. Holder, Jr., Marketing and Utilization of Cotton Mill Waste, ERS-334 (P); 17. Foreign Agricultural Trade, April 1967 (P); 18. C. Vosloh, Jr., Dust Control—Why and How (M); 19. The National Food Situation, NFS-120 (M); (P); 20. R. Miller, "Nonfat Dry Milk Versus Blended Food Products", Dairy Situation, DS-313 and Dairy Situation, DS-314 (P); 21. R. Friend, The Food Industry in Western Europe and Japan (S); 22. H. W. Dill, Jr., Worldwide Use of Airphotos in Agriculture (M); 23. G. S. Brown, Soviet Agriculture After Khrushchev—A Brief Survey (M); 24. Foreign Regional Analysis Division, The Far East and Oceania Agricultural Situation, ERS For. 189 (P); 25. Foreign Regional Analysis Division (SM); 26. H. H. Ellis, Water Rights and Regulation in the Eastern United States (M); 27. The Tobacco Situation, TS-119 (P); 28. R. M. Walsh and G. Kromer, Food Oils and Fats in World Markets (M).

*Speech (S); published report (P); unpublished manuscript (M); special material (SM); *State publications may be obtained only by writing to the experiment station or university cited.*

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Thar She Blows!

Moby Dick can take a breather. Man is catching fewer whales every year, largely because he's already well depleted the whale population, and also because he's imposed some protective regulations.

Moby, of course, was a toothy albino sperm whale. But his cousins, the toothless baleen whales, provided half the world supplies of edible marine-animal oil only a decade ago.

Now their contribution is negligible. Last season's Antarctic catch—the bulk of the haul—yielded only 85,600 tons of oil, compared with 200,000 tons just two seasons earlier in 1963/64. The oil is used abroad in manufacturing margarine and other food products.

Most desirable baleen is the blue, or sulfur-bottom, whale, biggest animal ever on earth. He may be 100 feet long, weigh 150 tons, and yield over 8,000 gallons of oil.

Japan, the USSR and Norway now account for almost all the world catch of baleen whales, which they process on ocean-based factory ships.

Though the flow of whale oil into global trade has been reduced to a trickle, world output of fish oil, produced along with fish meal, has more than compensated for the loss.

In contrast to the days of yore, little fish now make the biggest splash in edible marine oil trade. Among them: Icelandic and Norwegian herring; U. S. menhaden; and Chilean and Peruvian anchovies. (And, of course, there's always cod liver oil.) (28)

THE FARM INDEX

CONTENTS

	page
THE FARM: <i>Farms on the Water Wagon— Optimum uses for the water supply</i>	5
RURAL LIFE: <i>Our Powerful Farm Producers —Population down and efficiency up</i>	10
MARKETING: <i>One of Our Boxcars Is Missing —Renovations on the railroads</i>	12
THE FOREIGN MARKET: <i>Prospecting for Pro- tein—Search for economical sources</i>	17
THE CONSUMER: <i>Who Owns the Water?— It's not necessarily the landowner</i>	21

Numbers in parentheses at end of stories refer to sources listed at end of issue.

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